



STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION



PAUL R. LEPAGE  
GOVERNOR

PATRICIA W. AHO  
COMMISSIONER

**Riverview Psychiatric Center  
Kennebec County  
Augusta, Maine  
A-847-71-E-M (SM)**

**Departmental  
Findings of Fact and Order  
Air Emission License  
Amendment #1**

## **FINDINGS OF FACT**

After review of the air emissions license minor revision application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 Maine Revised Statutes Annotated (M.R.S.A.), §344 and §590, the Maine Department of Environmental Protection (Department) finds the following facts:

### **I. REGISTRATION**

#### **A. Introduction**

Riverview Psychiatric Center was issued Air Emission License A-847-71-D-R on May 23, 2013, permitting the operation of three boilers and a generator associated with their state office facility.

Riverview Psychiatric Center has requested a minor revision to the air emission license to allow the firing of natural gas in Boilers #1, #2, and #3, in addition to the fuel oil currently licensed. The annual diesel fuel limit will remain in place and an annual natural gas limit will be added for ease of recordkeeping.

The minor revision also updates the hours of operation for diesel-fired Emergency Generator #1. This change is occurring to be consistent among licensed sources and to align state requirements with federal requirements.

In addition, the applicability of Boiler #3 to 40 CFR Part 63, Subpart JJJJJ requirements is clarified to note that the steam boiler is subject to the regulation.

The equipment addressed in this license is located at 250 Arsenal Street, Augusta, Maine.

#### **B. Emission Equipment**

The following equipment is addressed in this air emission license:

AUGUSTA  
17 STATE HOUSE STATION  
AUGUSTA, MAINE 04333-0017  
(207) 287-7688 FAX: (207) 287-7826  
RAY BLDG., HOSPITAL ST.

BANGOR  
106 HOGAN ROAD, SUITE 6  
BANGOR, MAINE 04401  
(207) 941-4570 FAX: (207) 941-4584

PORTLAND  
312 CANCO ROAD  
PORTLAND, MAINE 04103  
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE  
1235 CENTRAL DRIVE, SKYWAY PARK  
PRESQUE ISLE, MAINE 04769  
(207) 764-0477 FAX: (207) 760-3143

**Boilers**

<b><u>Equipment</u></b>	<b><u>Maximum Capacity (MMBtu/hr)</u></b>	<b><u>Maximum Firing Rate</u></b>	<b><u>Fuel Type</u></b>	<b><u>Stack #</u></b>
Boiler #1	12.3	89.8 gal/hr	diesel fuel	1
		11,942 scf/hr*	natural gas	
Boiler #2	12.3	89.8 gal/hr	diesel fuel	1
		11,942 scf/hr*	natural gas	
Boiler #3	1.2	8.8 gal/hr	diesel fuel	1
		1165 scf/hr*	Natural gas	

\* Calculated from the maximum capacity and a natural gas heat content of 1030 Btu/scf.

A revision is also being made to the annual operating hour limit of Emergency Generator #1, a 14.2 MMBtu/hr diesel fuel fired unit.

**C. Application Classification**

This amendment will add the allowance of firing 26.6 million scf/year of natural gas and revise the operating limit on Emergency Generator #1 to 100 hours per year, excluding emergency use. The modification of a minor source is classified by comparing the current licensed emissions preceding the modification to the maximum future licensed allowed emissions, as follows:

<b><u>Pollutant</u></b>	<b><u>Current License (TPY)</u></b>	<b><u>Future License (TPY)</u></b>	<b><u>Net Change (TPY)</u></b>
PM	1.5	1.9	0.4
PM <sub>10</sub>	1.5	1.9	0.4
SO <sub>2</sub>	0.2	0.03	-0.17
NO <sub>x</sub>	15.5	7.7	-7.8
CO	3.5	2.2	-1.3
VOC	0.4	0.2	-0.2
CO <sub>2</sub> e	<100,000	<100,000	<100,000

Based on no new equipment and the net change of licensed allowed emissions below an increase of 4 tons per year of any single pollutant and 8 tons per year of total pollutants, this amendment is determined to be a minor revision and has been processed as such.

## II. BEST PRACTICAL TREATMENT (BPT)

### A. Introduction

In order to receive a license, the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in *Definitions Regulation*, 06-096 CMR 100 (as amended). Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in *Definitions Regulation*, 06-096 CMR 100 (as amended). BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

### B. Boilers #1, #2, and #3 – Addition of Natural Gas

Riverview Psychiatric Center operates Boilers #1, #2, and #3, with maximum capacity ratings of 12.3 MMBtu/hr, 12.3 MMBtu/hr, and 1.2 MMBtu/hr, respectively. The units are currently licensed to fire ultra-low sulfur diesel fuel (0.0015% maximum sulfur content) and the facility has requested to add natural gas as a licensed allowed fuel. The units were each installed in 2002 and all three boilers exhaust through a common stack.

Boilers #1 and #2 are subject to the New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart Dc, *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*, for units greater than 10 MMBtu/hr manufactured after June 9, 1989. Boiler #3 is not subject to the rule due to its size.

#### 1. BACT Findings

The emission limits from Boilers #1, #2, and #3 when firing diesel fuel shall remain the same as licensed in air emission license A-847-71-D-R.

The BACT emission limits for the boilers when firing natural gas were based on the following:

PM/PM <sub>10</sub>	– 0.05 lb/MMBtu based on 06-096, CMR 115, BACT
SO <sub>2</sub>	– 0.6 lb/MMscf based on AP-42, Table 1.4-2, dated 7/98
NO <sub>x</sub>	– 100 lb/MMscf based on AP-42, Table 1.4-1, dated 7/98
CO	– 84 lb/MMscf based on AP-42, Table 1.4-1, dated 7/98
VOC	– 5.5 lb/MMscf based on AP-42, Table 1.4-2, dated 7/98

The BACT emission limits for the boilers when firing natural gas are the following:

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler #1 (12.3 MMBtu/hr) <i>natural gas</i>	0.6	0.6	0.007	1.19	1.0	0.07
Boiler #2 (12.3 MMBtu/hr) <i>natural gas</i>	0.6	0.6	0.007	1.19	1.0	0.07
Boiler #3 (1.2 MMBtu/hr) <i>natural gas</i>	0.06	0.06	0.001	0.12	0.1	0.01

Visible emissions from the boilers' stack #1 when natural gas is the only fuel being fired shall not exceed 10% opacity on a 6 minute block average, except for no more than one (1) six (6) minute block average in a 3-hour period.

Boilers #1, #2, and #3 are limited to a total of 200,000 gallons/year of diesel fuel per air emission license A-847-71-D-R and shall continue to be limited to this amount of diesel fuel. Boilers #1, #2, and #3 will also be limited to a total of 26.6 MMscf/year of natural gas on a calendar year basis. These two fuel limits represent equivalent annual heat input content. Although the two maximum fuel use limits will most likely never be both reached in a year, having the fuel limited in this way will simplify recordkeeping so the facility will not need to keep records on an annual heat input basis, only on a fuel use basis. Records of the type of fuel used and the amounts fired shall be maintained on a monthly and calendar year basis.

2. 40 CFR Part 63 Subpart JJJJJ

Boilers #1, #2, and #3 are subject to the *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources* (40 CFR Part 63 Subpart JJJJJ). The units are considered existing oil boilers since the units will continue to be licensed to fire diesel fuel, in addition to natural gas. The applicable federal 40 CFR Part 63 Subpart JJJJJ requirements summarized in air emission license A-847-71-D-R shall continue to apply to the boilers.

Although Boiler #3 was not initially listed as being subject to 40 CFR Part 63 Subpart JJJJJ in air emission license A-847-71-D-R because the unit's heat input capacity is below 1.6 MMBtu/hr, it has since been determined that Boiler #3 is a steam boiler, not a hot water boiler. Therefore, it is not exempt from the federal regulation. Only units that meet both criteria of being under 1.6 MMBtu/hr and are classified as a hot water boiler are exempt.

C. Emergency Generator #1

Emergency Generator #1 is rated at 14.2 MMBtu/hr and fires diesel fuel with a maximum sulfur content of 0.0015%. Emergency Generator #1's licensed emission limit requirements are not changing. However, in order to establish consistency with federal regulations applicable to internal combustion engines and with licenses issued to other facilities in the state, the annual operating limit for Emergency Generator #1 will be revised from a 500 hours/year operating restriction total, including emergency use, to a 100 hours/year operating restriction, excluding emergency use, on a calendar year basis. There is no limit on emergency operation.

Emergency Generator #1 is only to be operated for maintenance purposes and for situations arising from sudden and reasonably unforeseeable events beyond the control of the source. Emergency Generator #1 is not to be used for prime power when reliable offsite power is available. Emergency Generator #1 shall continue to be equipped with a non-resettable hour-meter to record operating time. To demonstrate compliance with the operating hours limit, Riverview Psychiatric Center shall keep records of the total hours of operation and the hours of emergency operation for the unit.

As stated in the renewal, A-847-71-D-R, Emergency Generator #1 is not currently subject to 40 CFR Part 63, Subpart ZZZZ, *National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines* since it is considered an existing, emergency stationary reciprocating internal combustion engine at an area HAP source, it is categorized as a residential, commercial, or institutional emergency engine, and it does not operate or is not contractually obligated to be available for more than 15 hours per calendar year in a demand response program, during a period of deviation from standard voltage or frequency, or supplying power during a non-emergency situation as part of a financial arrangement with another entity as specified in §63.6640(f)(4)(ii).

D. Annual Emissions

1. Annual Criteria Emissions

The Riverside Psychiatric Center shall be restricted to the following annual emissions, based on a calendar year. The tons per year limits were calculated based on a diesel fuel limit of 200,000 gallons/year and a natural gas limit of 26.6 MMscf/year for the three boilers, and a 100 hrs/yr operating limit, excluding emergency use, for Emergency Generator #1.

**Total Licensed Annual Emissions**  
**Tons/year**  
(used to calculate the annual license fee)

	<b>PM</b>	<b>PM<sub>10</sub></b>	<b>SO<sub>2</sub></b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>VOC</b>
Boilers #1, #2, and #3 firing diesel fuel	1.10	1.10	0.02	4.11	0.50	0.02
Boilers #1, #2, and #3 firing natural gas	0.7	0.7	0.008	1.33	1.12	0.07
Emergency Generator #1	0.09	0.09	0.001	2.27	0.60	0.06
<b>Total TPY</b>	<b>1.9</b>	<b>1.9</b>	<b>0.03</b>	<b>7.71</b>	<b>2.2</b>	<b>0.2</b>

2. Greenhouse Gases

Greenhouse gases are considered regulated pollutants as of January 2, 2011, through 'Tailoring' revisions made to EPA's *Approval and Promulgation of Implementation Plans*, 40 CFR Part 52, Subpart A, §52.21 Prevention of Significant Deterioration of Air Quality rule. Greenhouse gases, as defined in 06-096 CMR 100 (as amended), are the aggregate group of the following gases: Carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. For licensing purposes, greenhouse gases (GHG) are calculated and reported as carbon dioxide equivalents (CO<sub>2</sub>e).

Based on the facility's fuel use limit(s), the worst case emission factors from AP-42, IPCC (Intergovernmental Panel on Climate Change), and *Mandatory Greenhouse Gas Reporting*, 40 CFR Part 98, and the global warming potentials contained in 40 CFR Part 98, Riverside Psychiatric Center is below the major source threshold of 100,000 tons of CO<sub>2</sub>e per year. Therefore, no additional licensing requirements are needed to address GHG emissions at this time.

### III. AMBIENT AIR QUALITY ANALYSIS

The level of ambient air quality impact modeling required for a minor source shall be determined by the Department on a case-by case basis. In accordance with 06-096 CMR 115, an ambient air quality impact analysis is not required for a minor source if the total emissions of any pollutant released do not exceed the following levels and there are no extenuating circumstances:

<b><u>Pollutant</u></b>	<b><u>Tons/Year</u></b>
PM <sub>10</sub>	25
SO <sub>2</sub>	50
NO <sub>x</sub>	50
CO	250

The total facility licensed emissions are below the emission levels contained in the table above and there are no extenuating circumstances; therefore, an ambient air quality impact analysis is not required as part of this license.

### **ORDER**

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards, and
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-847-71-E-M subject to the conditions found in Air Emission License A-847-71-D-R and in the following conditions.

Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

### **SPECIFIC CONDITIONS**

**The following shall replace condition (16) in air emission license A-847-71-D-R:**

**(16) Boilers #1, #2, and #3**

**A. Fuels**

**1. Natural Gas**

Natural gas may be fired in Boilers #1, #2, and #3, not to exceed 26.6 MMscf/year on a calendar year basis. Compliance shall be demonstrated by natural gas fuel use records maintained on a monthly and calendar year basis. [06-096 CMR 115, BACT]

**2. Diesel Fuel**

- a. Diesel fuel may be fired in Boilers #1, #2, and #3, not to exceed 200,000 gallons/year total on a calendar year basis.
- b. The maximum sulfur content of the diesel fuel shall not exceed 0.0015% by weight.
- c. Compliance with the diesel fuel requirements shall be demonstrated by diesel fuel use records maintained on a monthly and calendar year

basis, including the type of fuel, the amount of fuel, and the sulfur content of the fuel. [06-096 CMR 115, BPT]

- B. Emissions from the boilers when firing diesel fuel shall not exceed the following [06-096 CMR 115, BPT]:

Emission Unit	Pollutant	lb/MMBtu	Origin and Authority
Boiler #1	PM	0.08	06-096 CMR 115, BACT
Boiler #2	PM	0.08	06-096 CMR 115, BACT

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler #1 (12.3 MMBtu/hr) <i>diesel fuel</i>	0.98	0.98	0.02	3.69	0.45	0.02
Boiler #2 (12.3 MMBtu/hr) <i>diesel fuel</i>	0.98	0.98	0.02	3.69	0.45	0.02
Boiler #3 (1.2 MMBtu/hr) <i>diesel fuel</i>	0.10	0.10	0.002	0.36	0.04	0.002

- C. Emissions from the boilers when firing natural gas shall not exceed the following [09-096 CMR 115, BACT]:

Emission Unit	Pollutant	lb/MMBtu	Origin and Authority
Boiler #1	PM	0.05	06-096 CMR 115, BACT
Boiler #2	PM	0.05	06-096 CMR 115, BACT

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler #1 (12.3 MMBtu/hr) <i>natural gas</i>	0.6	0.6	0.007	1.19	1.00	0.07
Boiler #2 (12.3 MMBtu/hr) <i>natural gas</i>	0.6	0.6	0.007	1.19	1.00	0.07
Boiler #3 (1.2 MMBtu/hr) <i>natural gas</i>	0.06	0.06	0.001	0.12	0.10	0.01

- D. Visible Emissions

1. Visible emissions from Stack #1 when any of the operating boiler(s) are firing diesel fuel shall not exceed 20% opacity on a six- minute block average, except for no more than one (1) six (6)-minute block average in a 3-hour period. [06-096 CMR 101]



2. Visible emissions from Stack #1 when natural gas is the only fuel being fired shall not exceed 10% opacity on a six (6)-minute block average, except for no more than one (1) six (6)-minute block average in a 3-hour period. [06-096 CMR 101]
- E. Riverview Psychiatric Center shall comply with all requirements of 40 CFR Part 60, Subpart Dc applicable to Boilers #1 and #2 including, but not limited to, the following:
1. Riverview Psychiatric Center shall record and maintain records of the amounts of each fuel combusted during each day or, if applicable, monthly records with fuel certifications. [40 CFR §60.48c(g)]
  2. Riverview Psychiatric Center shall submit to USEPA and the Department semi-annual reports. These reports shall include the calendar dates covered in the reporting period and records of fuel supplier certifications. The semi-annual reports are due within 30 days of the end of each 6-month period.
  3. The following address for USEPA shall be used for any reports or notifications required to be copied to them:

Compliance Clerk  
USEPA Region I  
5 Post Office Sq. Suite 100  
Boston, MA 02109-3912

**The following shall replace condition (17) in air emission license A-847-71-D-R:**

**(17) Emergency Generator #1**

**A. Operational Restrictions**

1. Emergency Generator #1 shall be limited to 100 hours of operation, excluding emergency use, on a calendar year basis. Compliance shall be demonstrated by a written log of all generator operating hours. [06-096 CMR 115, BPT]
2. Emergency Generator #1 is only to be operated for maintenance purposes and for situations arising from sudden and reasonably unforeseeable events beyond the control of the source. Emergency Generator #1 is not to be used for prime power when reliable offsite power is available; nor to operate or to be contractually obligated to be available for more than 15 hours per calendar year in a demand response program, during a period of deviation from standard voltage or frequency, or supplying power during a

non-emergency situation as part of a financial arrangement with another entity. [06-096 CMR 115, BPT]

B. The diesel fuel sulfur content for Emergency Generator #1 shall be limited to 0.0015% sulfur by weight. Compliance shall be demonstrated by fuel records from the supplier documenting the type of fuel delivered and the sulfur content of the fuel. [06-096 CMR 115, BPT]

C. Emissions shall not exceed the following:

Equipment	Pollutant	lb/MMBTU	Origin and Authority
Emergency Generator #1	PM	0.12	06-096 CMR 103(2)(B)(1)(a)

D. Emissions shall not exceed the following [06-096 CMR 115, BPT]:

Equipment	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Emergency Generator #1 (14.2 MMBtu/hr) diesel fuel	1.7	1.7	0.02	45.4	12.1	1.3

E. Visible Emissions

Visible emissions from Stack #2 shall not exceed 20% on a six (6)-minute block average basis, except for no more than two (2) six (6)-minute block averages in a 3-hour period. [06-096 CMR 101]

DONE AND DATED IN AUGUSTA, MAINE THIS 11 DAY OF April, 2014.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:

*Marc Allen Robert Case for*  
PATRICIA W. AHO, COMMISSIONER

The term of this amendment shall be concurrent with the term of Air Emission License A-847-71-D-R.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: February 12, 2014

Date of application acceptance: February 12, 2014

Date filed with the Board of Environmental Protection:

This Order prepared by Kathleen E. Tarbuck, Bureau of Air Quality.

